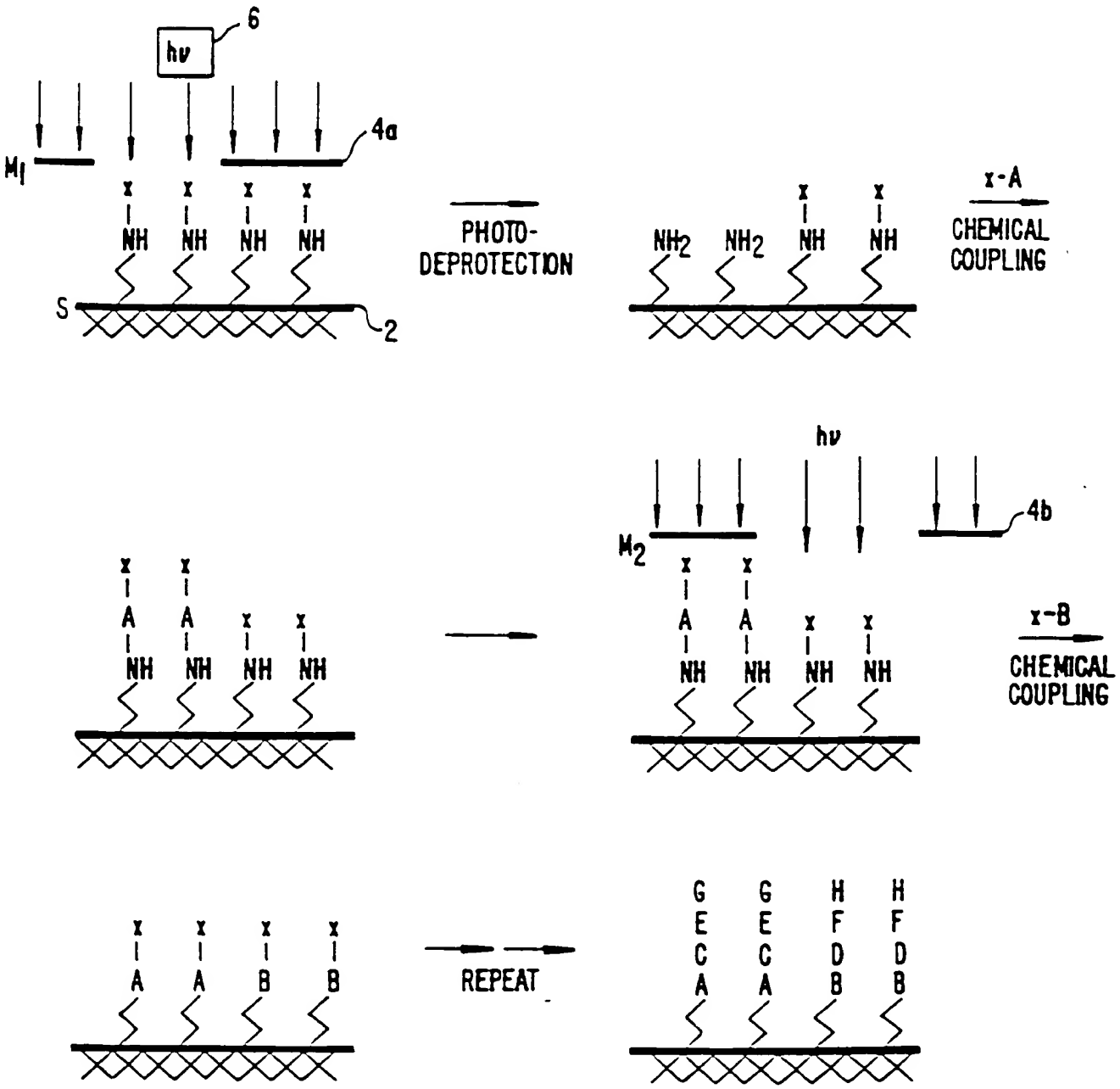
6
hν
4a
M1
X
NH
S
2
PHOTO-
DEPROTECTION
NH2
X-A
CHEMICAL
COUPLING
hν
4b
M2
A
X-B
CHEMICAL
COUPLING
REPEAT
G
E
C
A
H
F
D
B

FIG. 1.

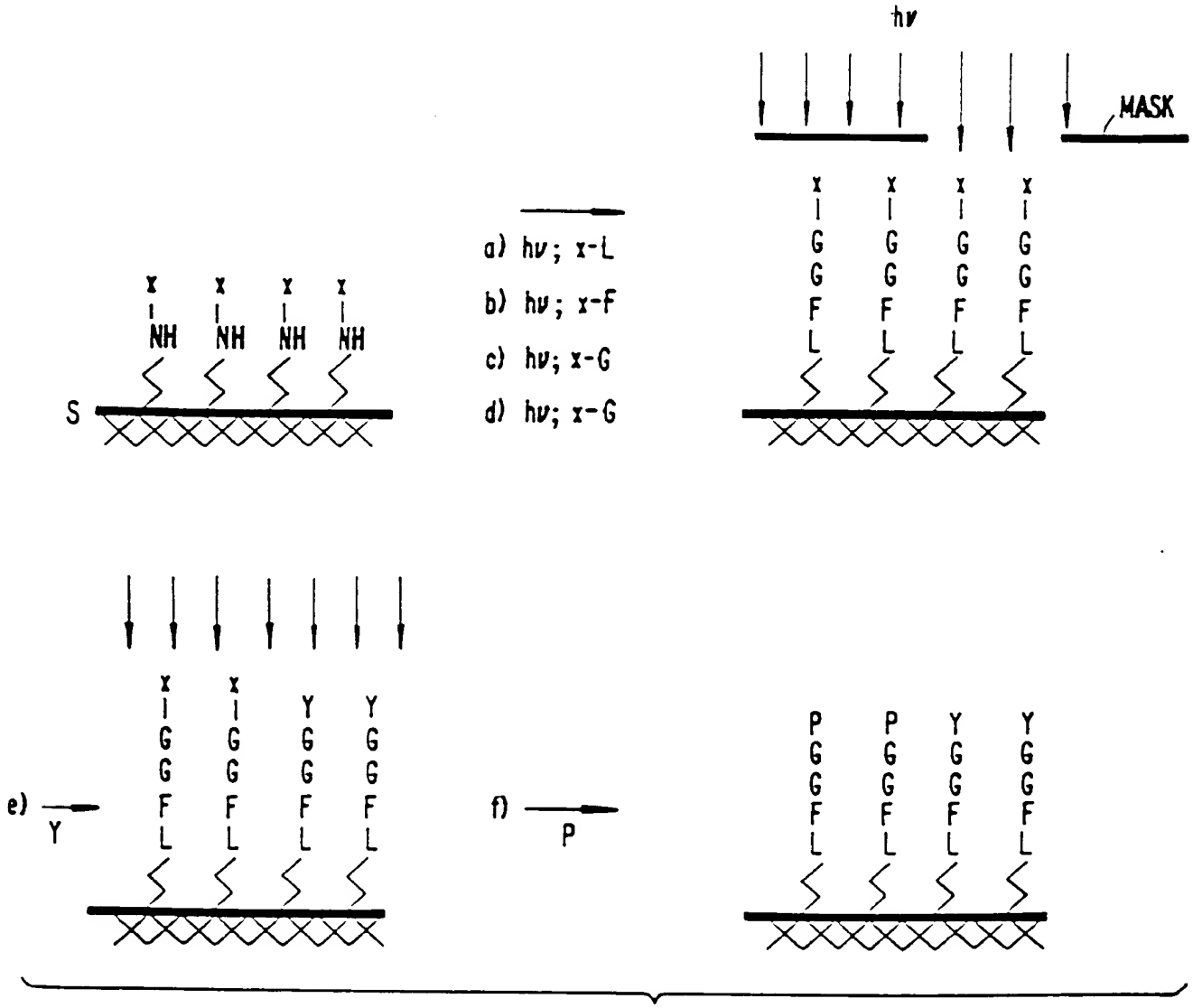

FIG. 2.

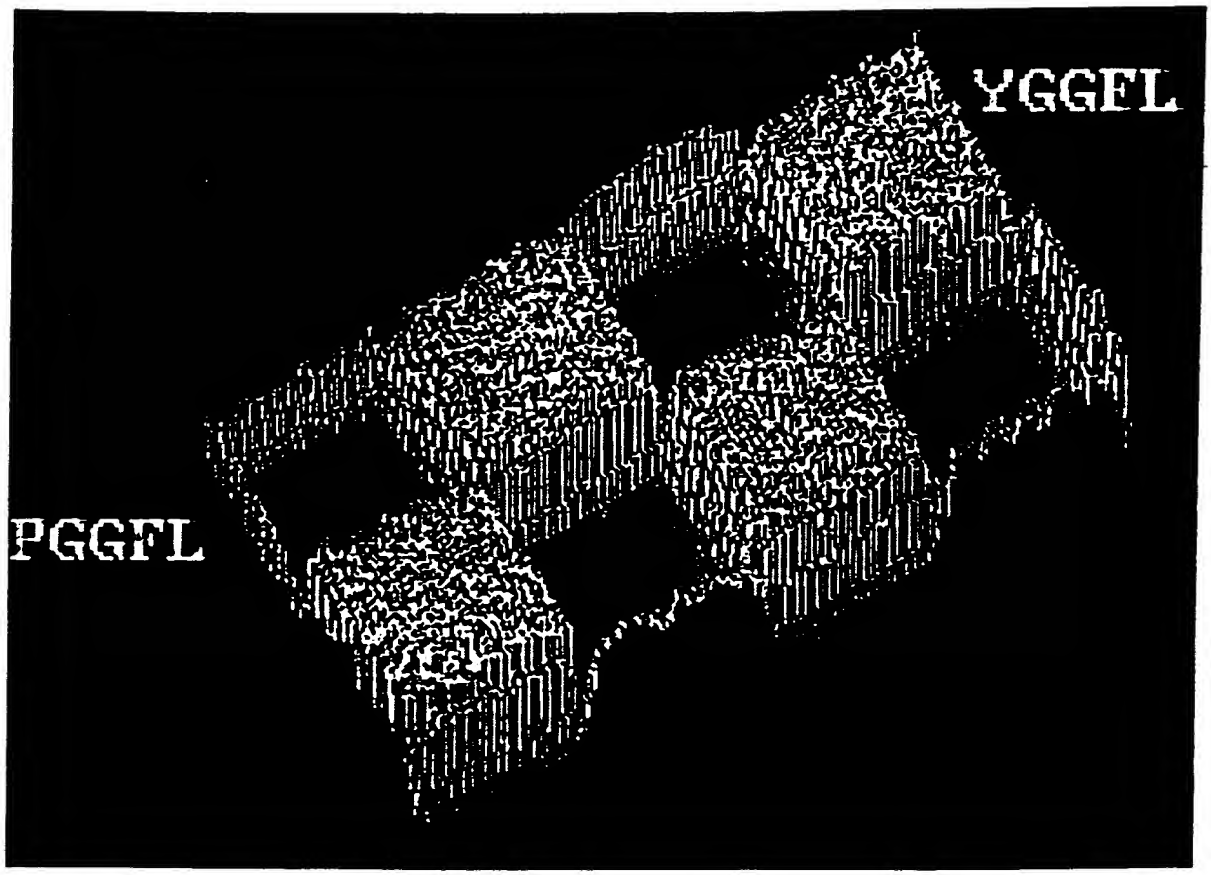

FIG. 3.

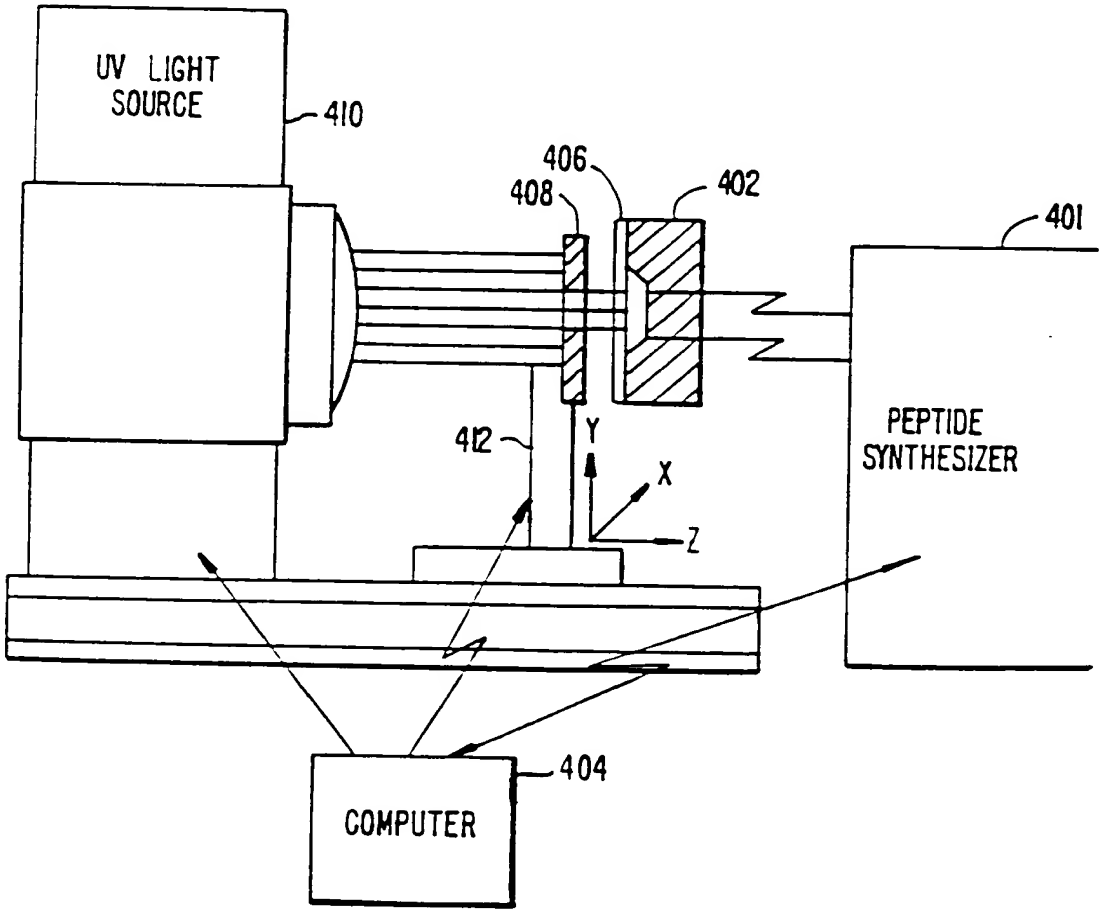
UV LIGHT SOURCE
410
406
408
402
401
412
Y
X
Z
PEPTIDE SYNTHESIZER
404
COMPUTER

FIG. 4.

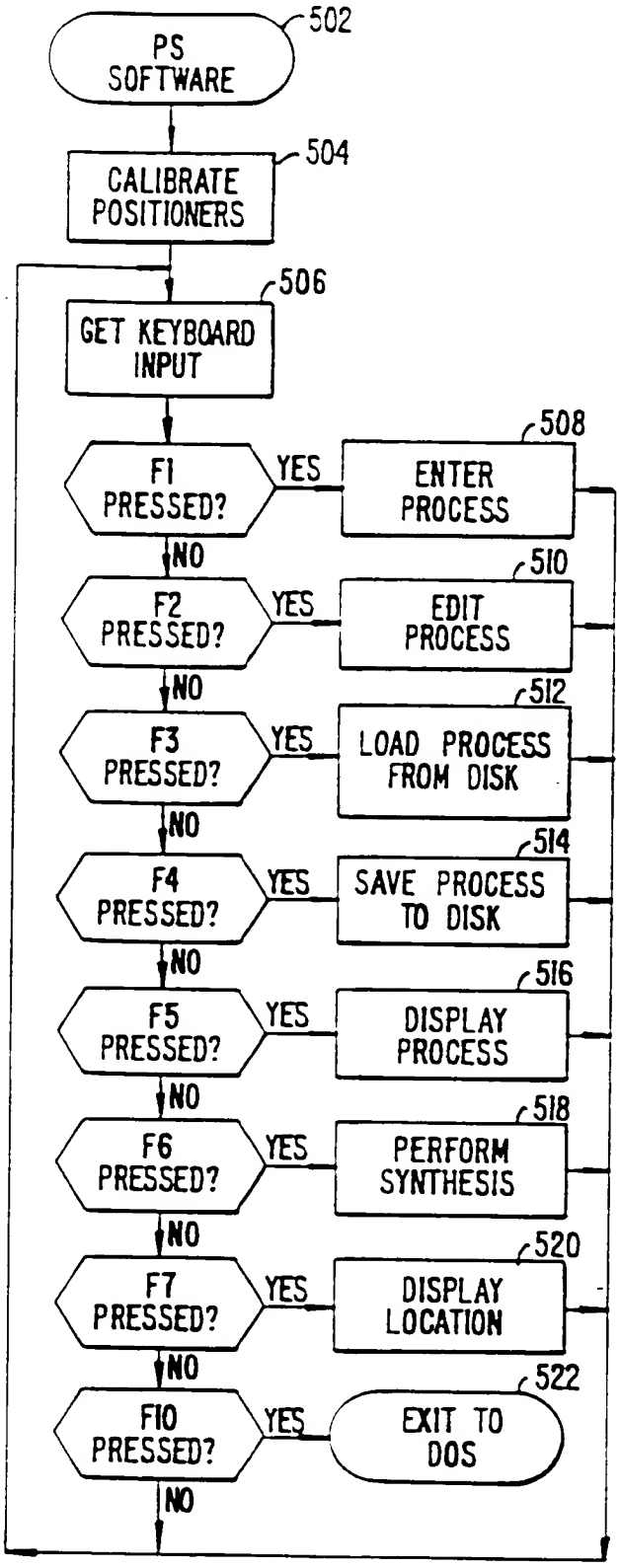
PS SOFTWARE
502
CALIBRATE POSITIONERS
504
GET KEYBOARD INPUT
506
F1 PRESSED?
YES
ENTER PROCESS
508
NO
F2 PRESSED?
YES
EDIT PROCESS
510
NO
F3 PRESSED?
YES
LOAD PROCESS FROM DISK
512
NO
F4 PRESSED?
YES
SAVE PROCESS TO DISK
514
NO
F5 PRESSED?
YES
DISPLAY PROCESS
516
NO
F6 PRESSED?
YES
PERFORM SYNTHESIS
518
NO
F7 PRESSED?
YES
DISPLAY LOCATION
520
NO
F10 PRESSED?
YES
EXIT TO DOS
522
NO

FIG. 5A.

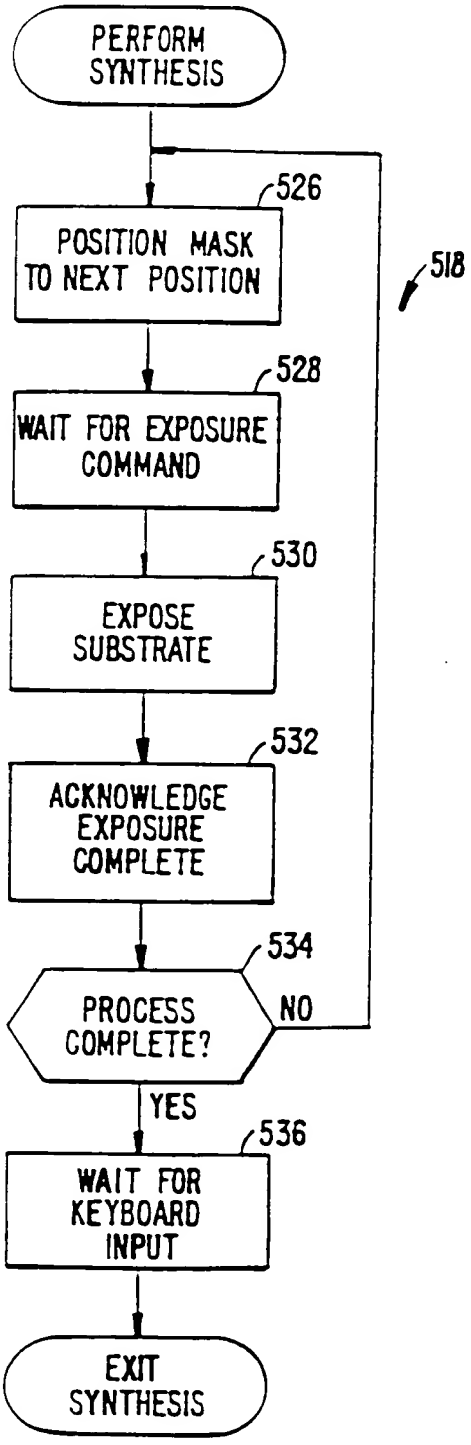
PERFORM SYNTHESIS
POSITION MASK TO NEXT POSITION
526
518
WAIT FOR EXPOSURE COMMAND
528
EXPOSE SUBSTRATE
530
ACKNOWLEDGE EXPOSURE COMPLETE
532
PROCESS COMPLETE?
534
NO
YES
WAIT FOR KEYBOARD INPUT
536
EXIT SYNTHESIS

FIG. 5B.

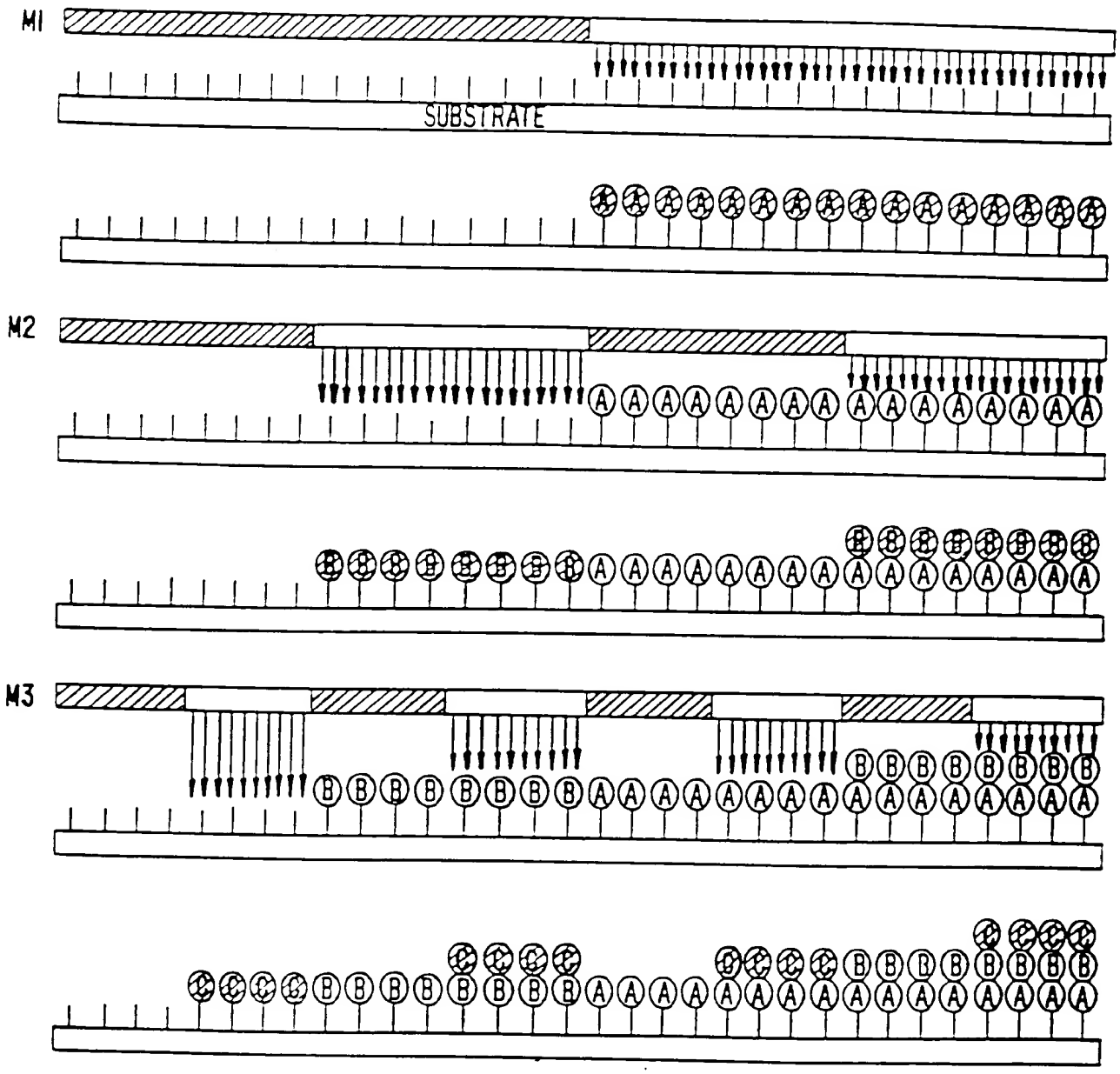

FIG. 6A.

FIG. 6A.
FIG. 6B.

FIG. 6.

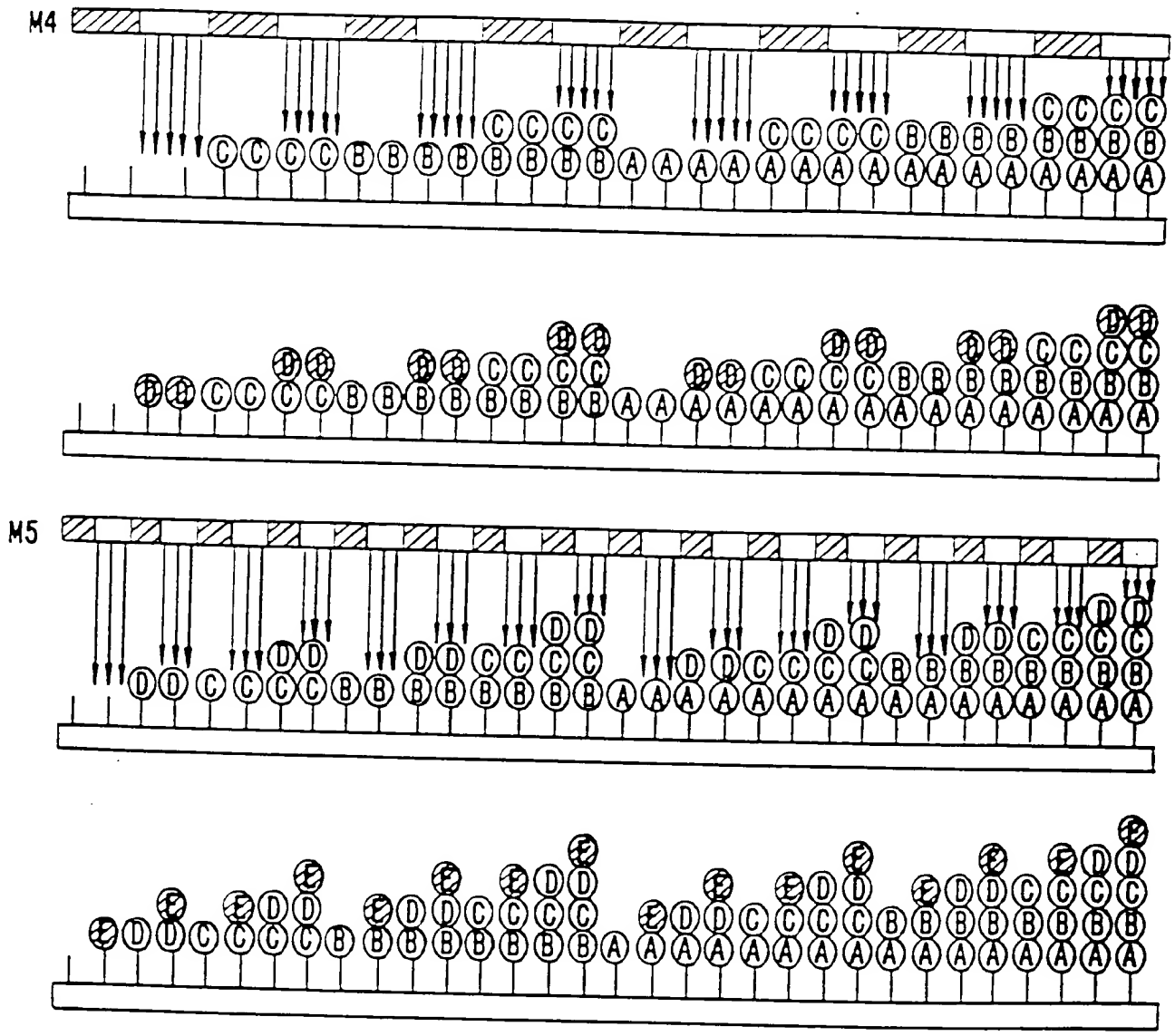

FIG. 6B.

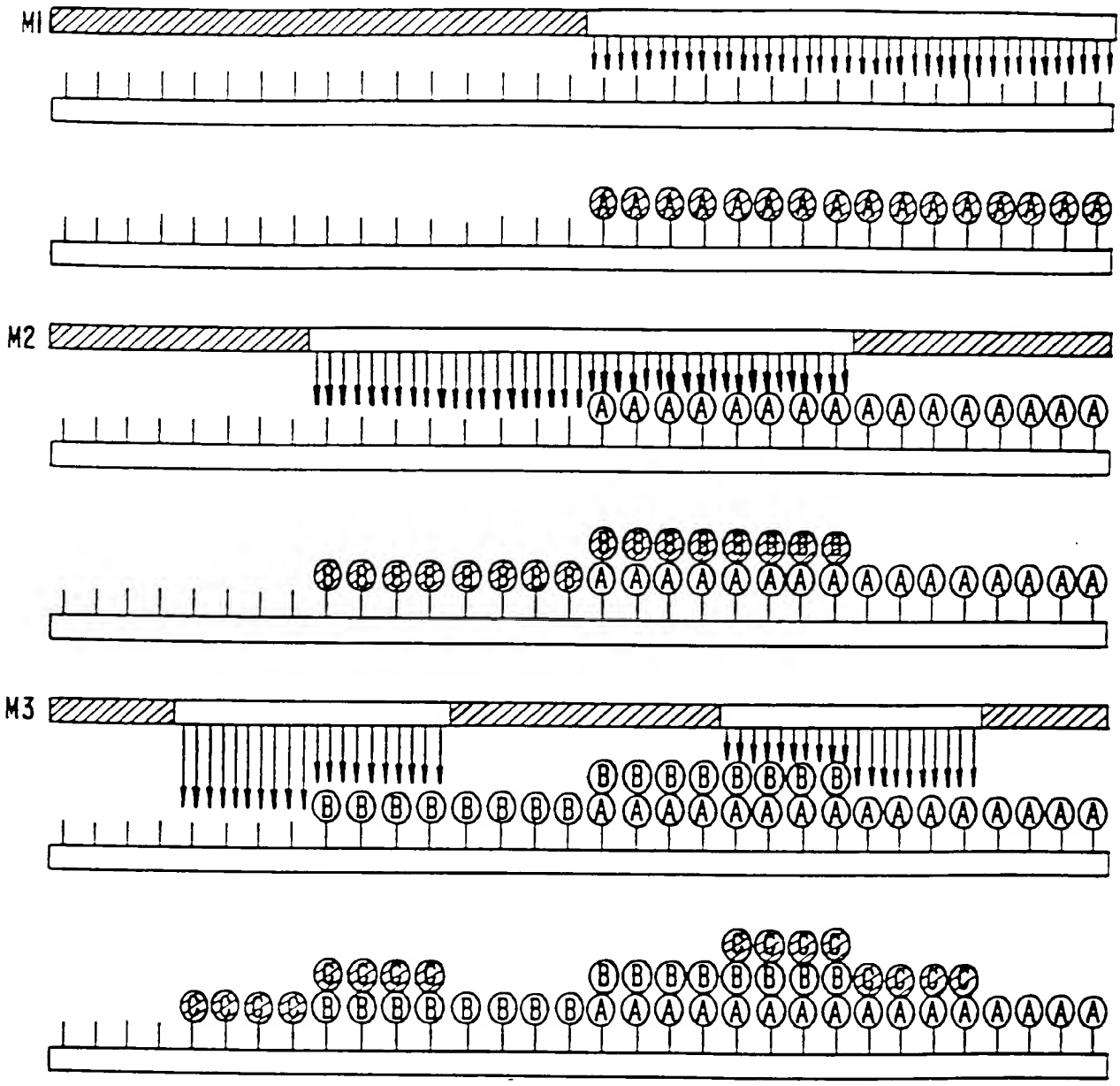

FIG. 7A.

FIG. 7A.
FIG. 7B.

FIG. 7.

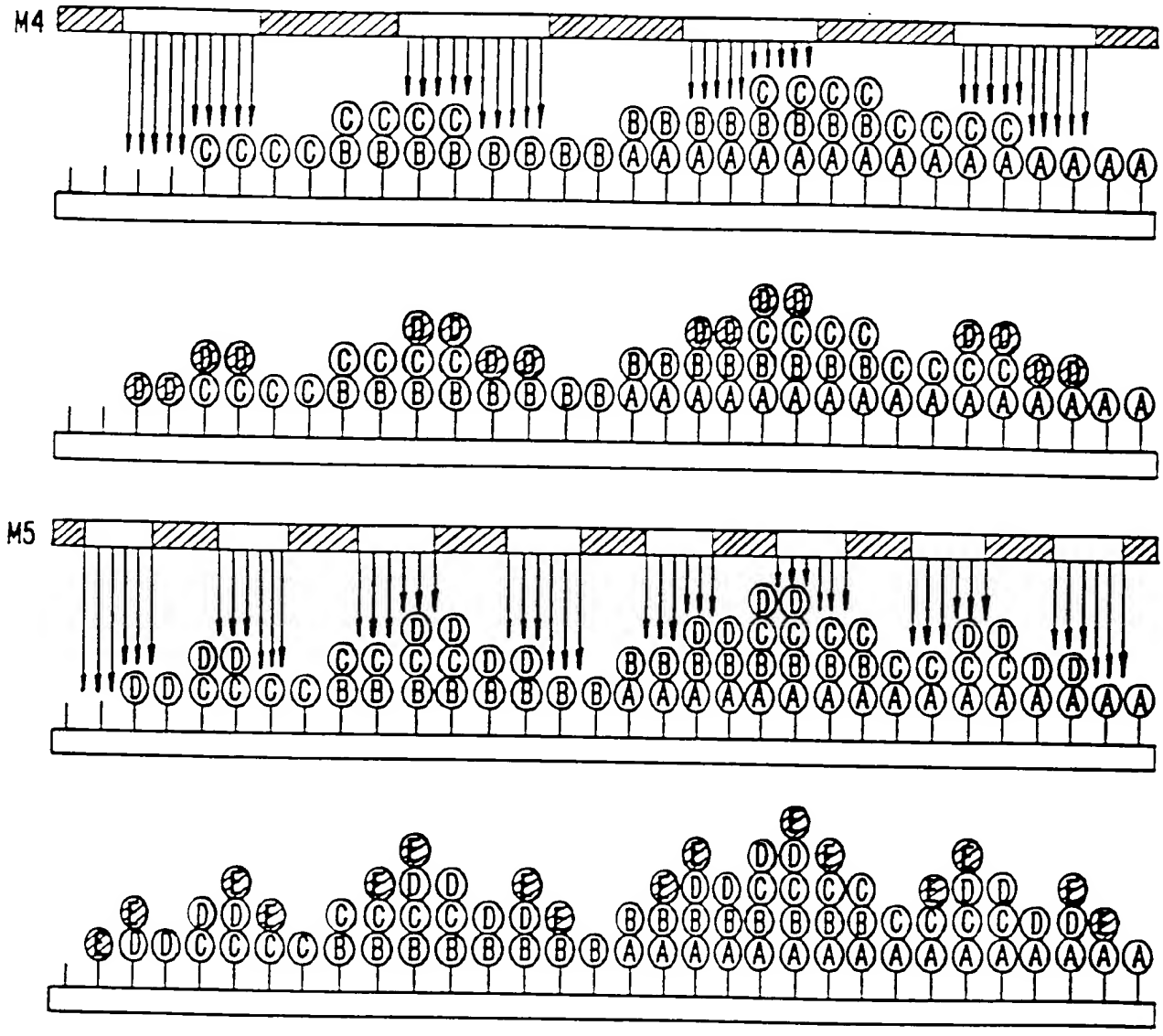

FIG. 7B.

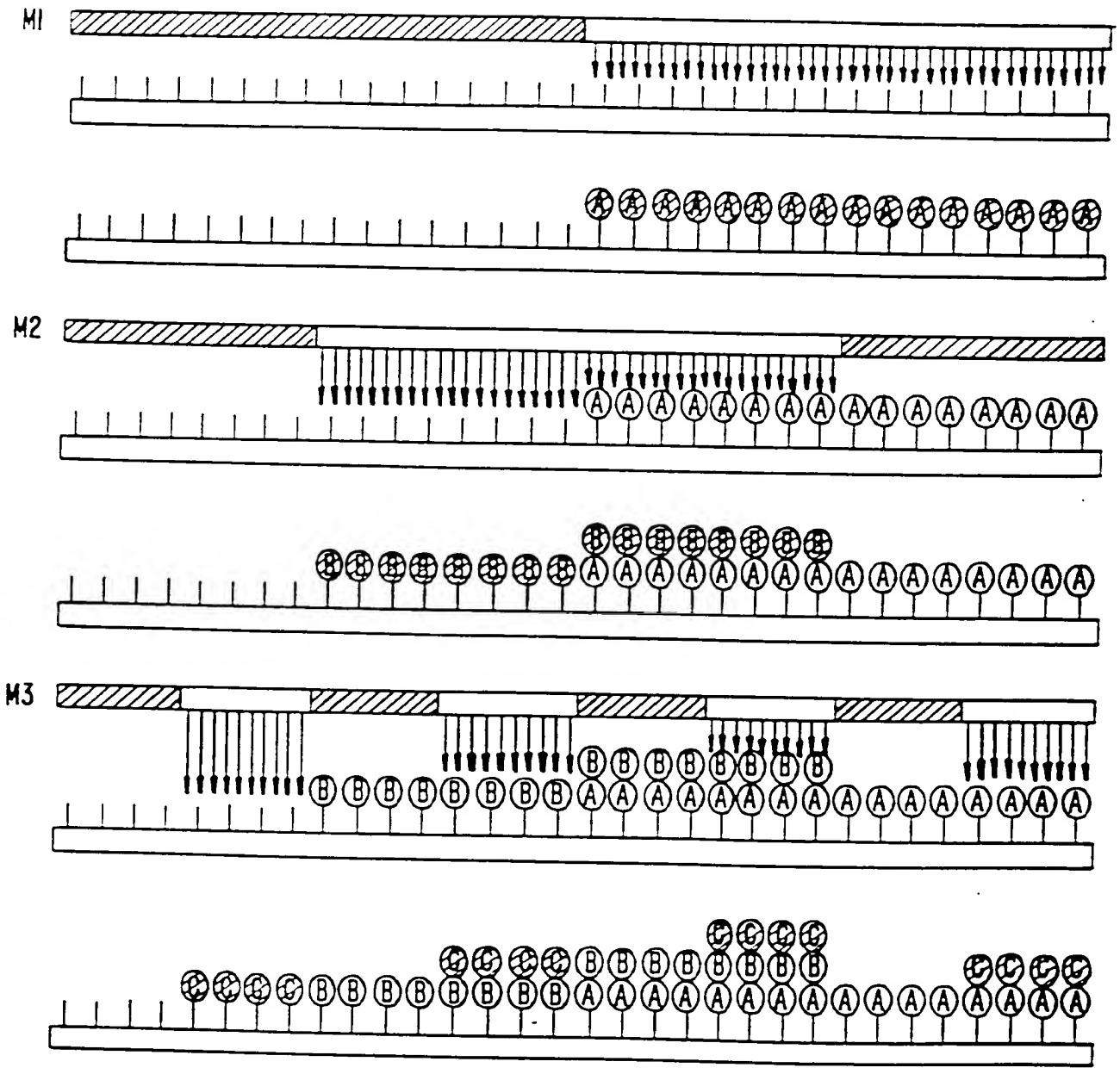

FIG. 8A.

FIG. 8A.
FIG. 8B.

FIG. 8

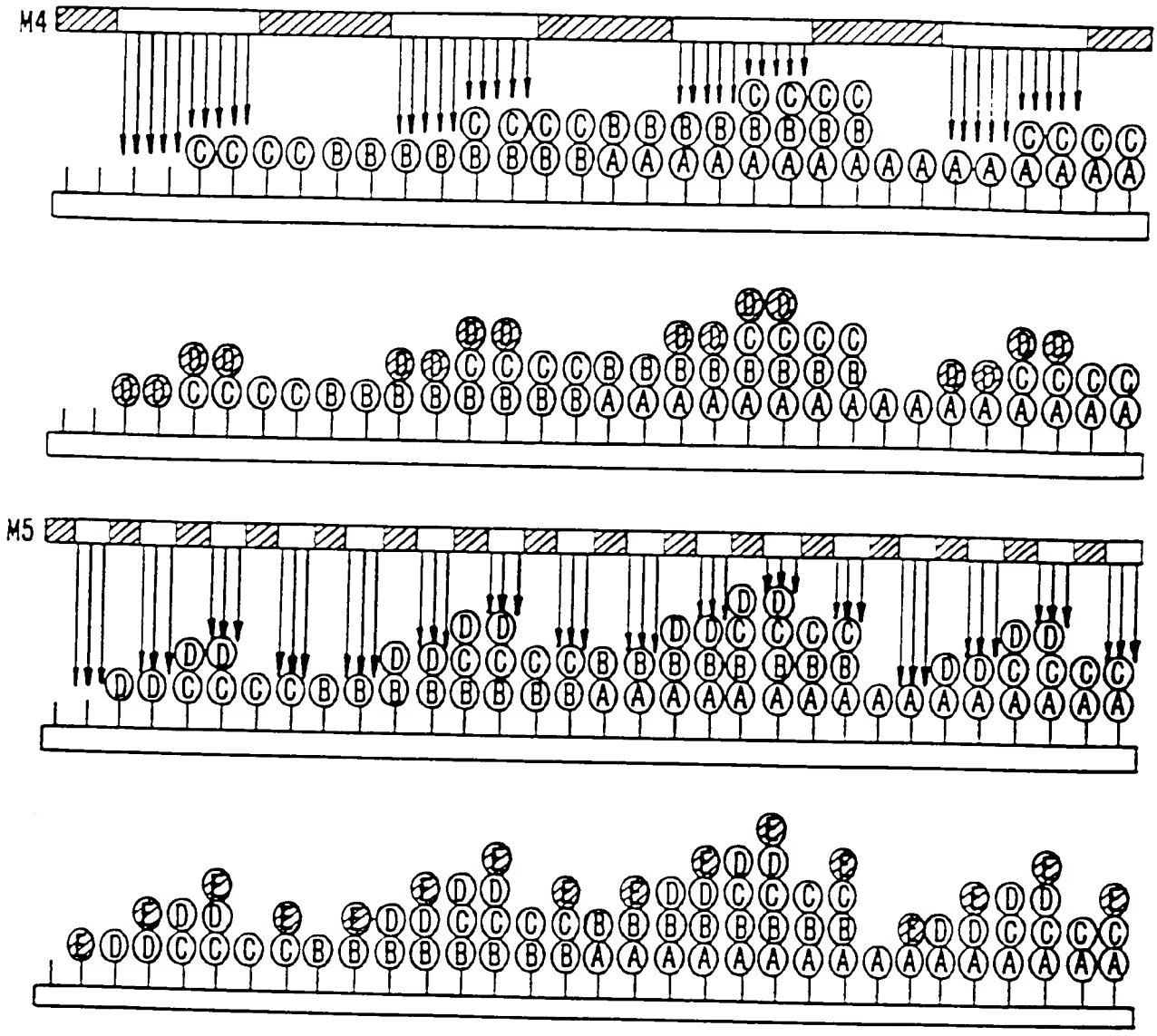

FIG. 8B.

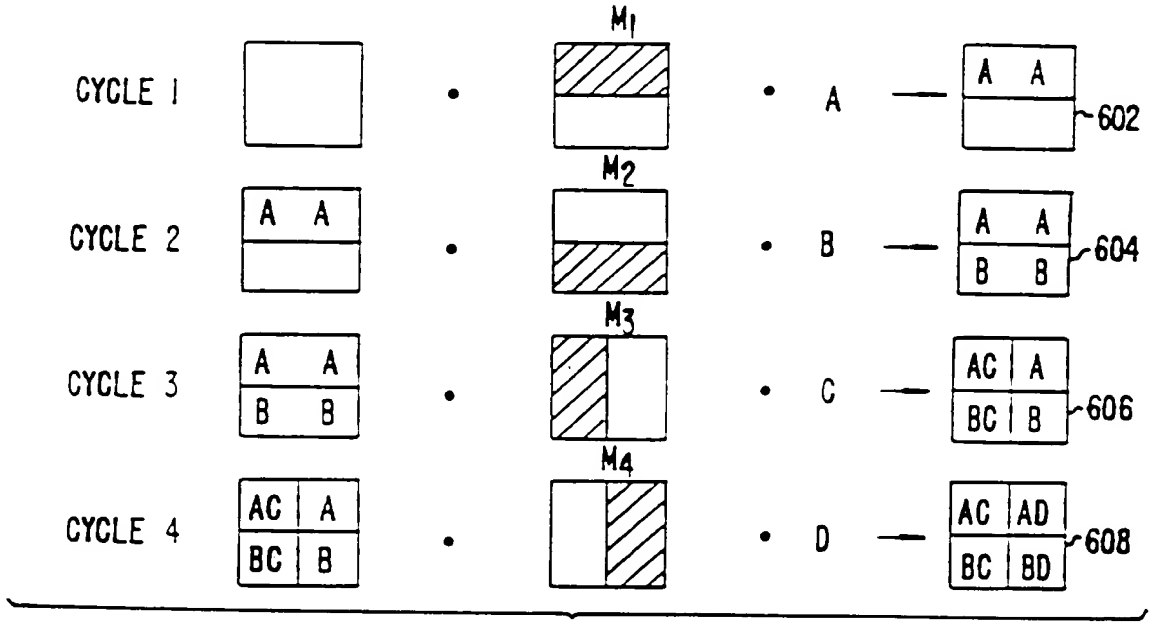
CYCLE 1
M1
A
A A
602
CYCLE 2
M2
A A
B
A A
B B
604
CYCLE 3
M3
A A
B B
C
AC A
BC B
606
CYCLE 4
M4
AC A
BC B
D
AC AD
BC BD
608

FIG. 9A.

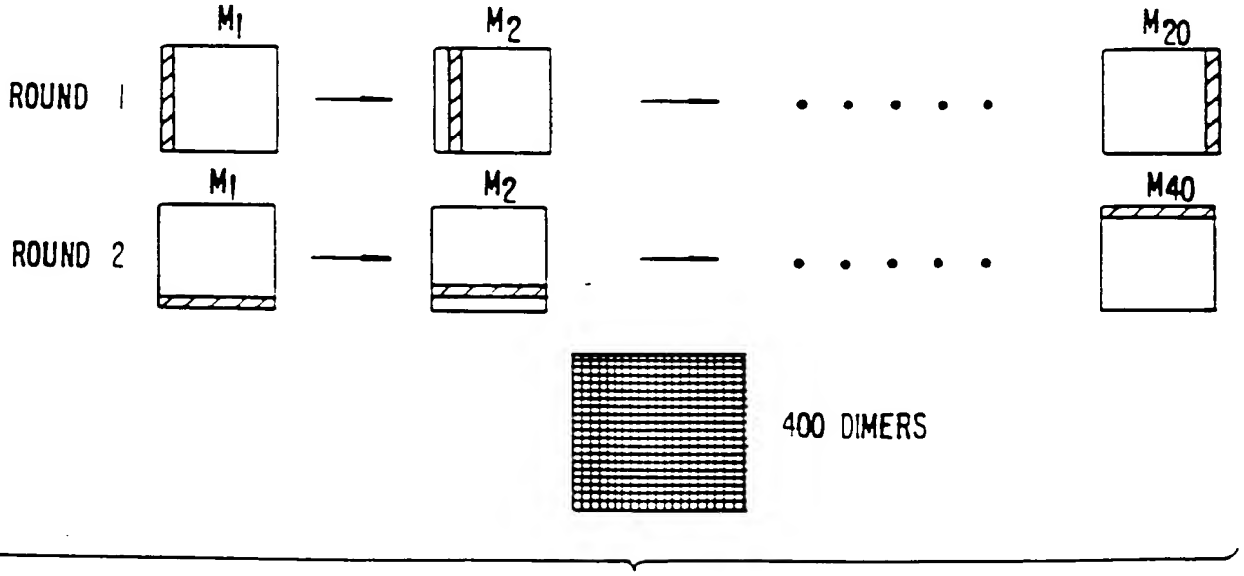
ROUND 1
M1
M2
M20
ROUND 2
M1
M2
M40
400 DIMERS

FIG. 9B.

(x, y)

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1		f		f		f		f		f		f		f		f		f		f		f		f		f		f		f		f
2		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y		Y
3			G	G	G	G					G	G	G	G					G	G	G	G					G	G	G	G		
4					A	A	A	A					A	A	A	A					A	A	A	A					A	A	A	A
5			G	G	G	G					G	G	G	G					G	G	G	G					G	G	G	G		
6					T	T	T	T					T	T	T	T					T	T	T	T					T	T	T	T
7									F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F								
8																	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L
9									S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S								
10																	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F

FIG. 10.

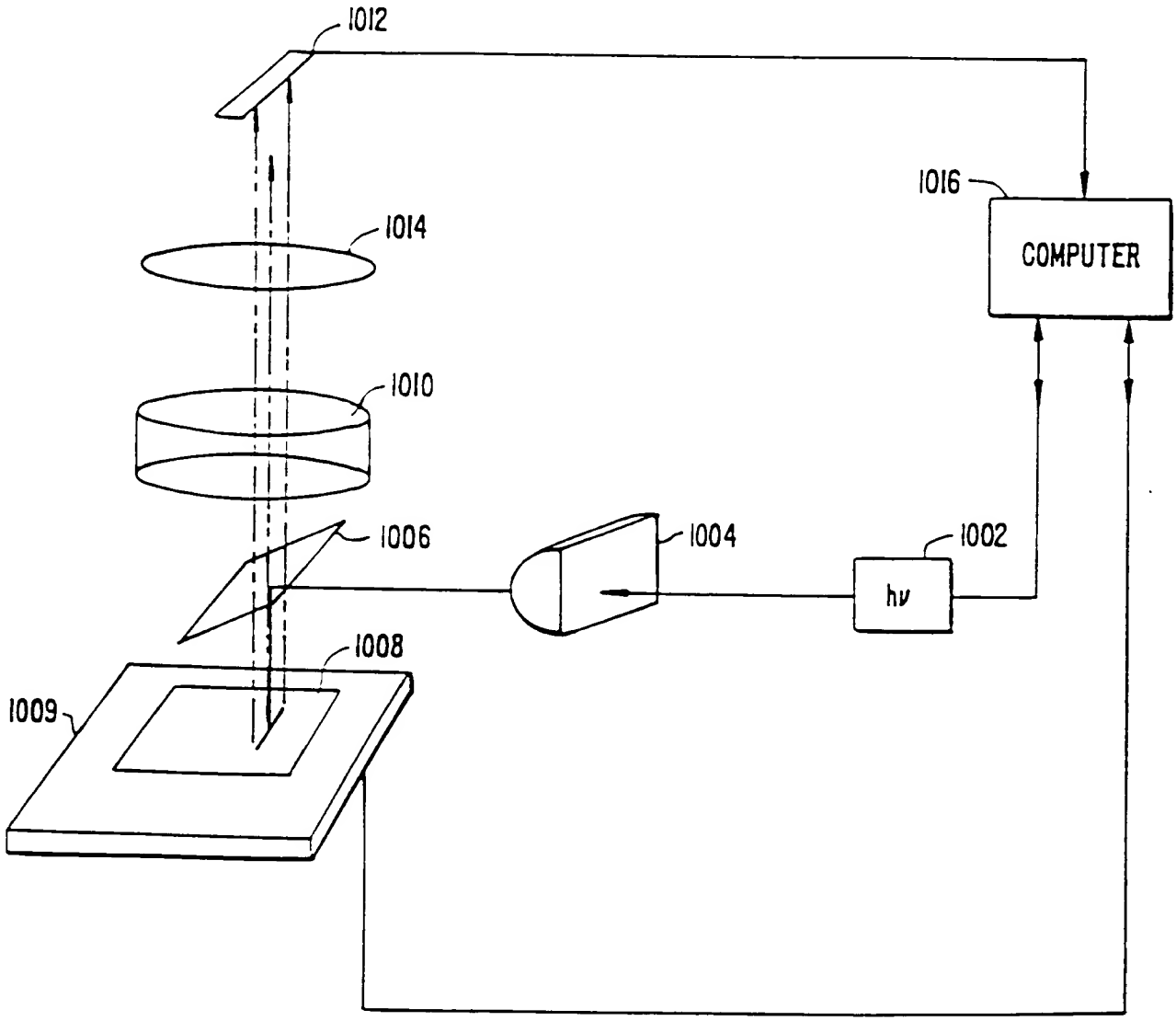

FIG. 11.

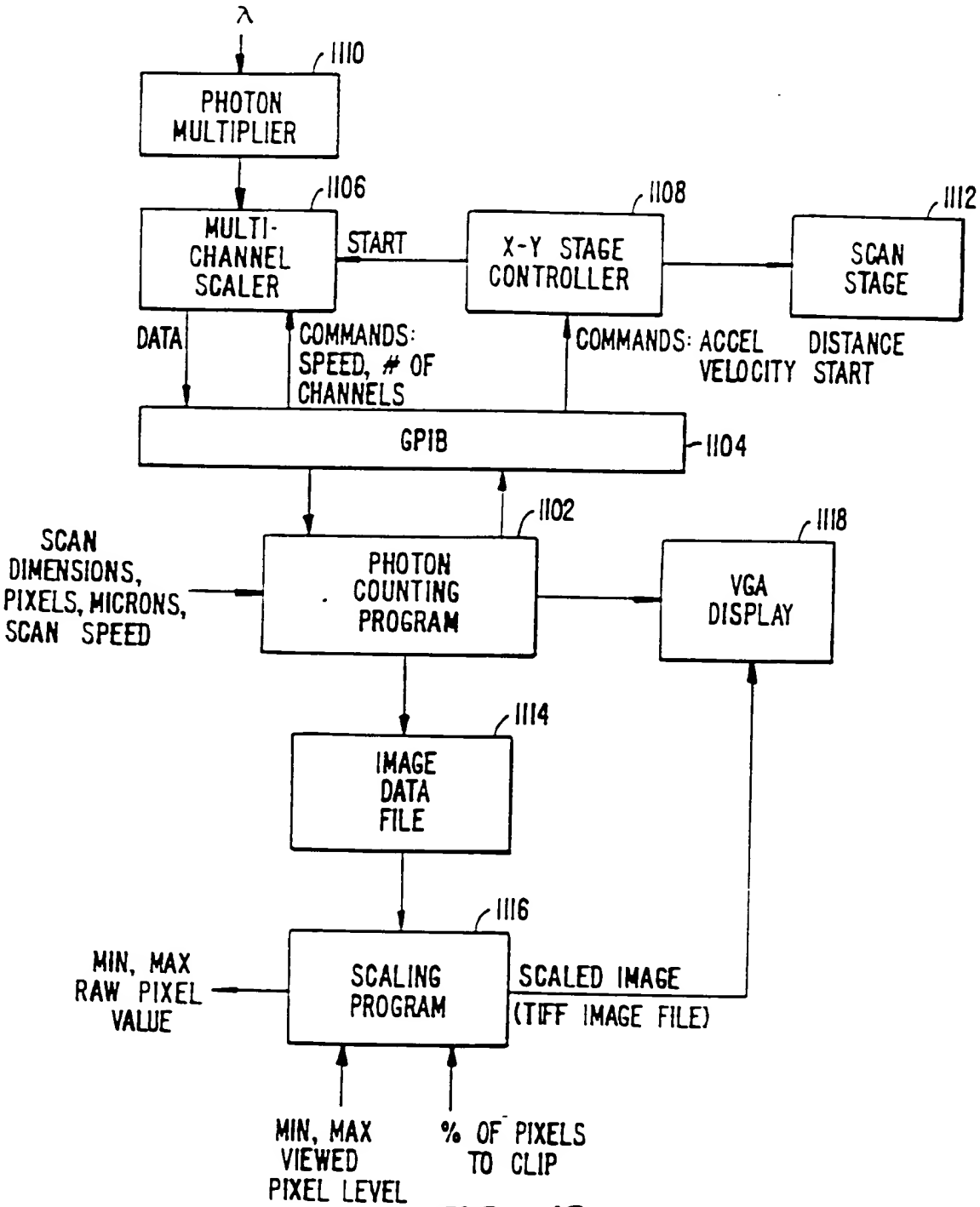
λ
1110
PHOTON MULTIPLIER
1106
MULTI-CHANNEL SCALER
START
1108
X-Y STAGE CONTROLLER
1112
SCAN STAGE
DATA
COMMANDS: SPEED, # OF CHANNELS
COMMANDS: ACCEL VELOCITY
DISTANCE START
GPIB
1104
1102
SCAN DIMENSIONS, PIXELS, MICRONS, SCAN SPEED
PHOTON COUNTING PROGRAM
1118
VGA DISPLAY
1114
IMAGE DATA FILE
1116
MIN, MAX RAW PIXEL VALUE
SCALING PROGRAM
SCALED IMAGE
(TIFF IMAGE FILE)
MIN, MAX VIEWED PIXEL LEVEL
% OF PIXELS TO CLIP

FIG. 12.

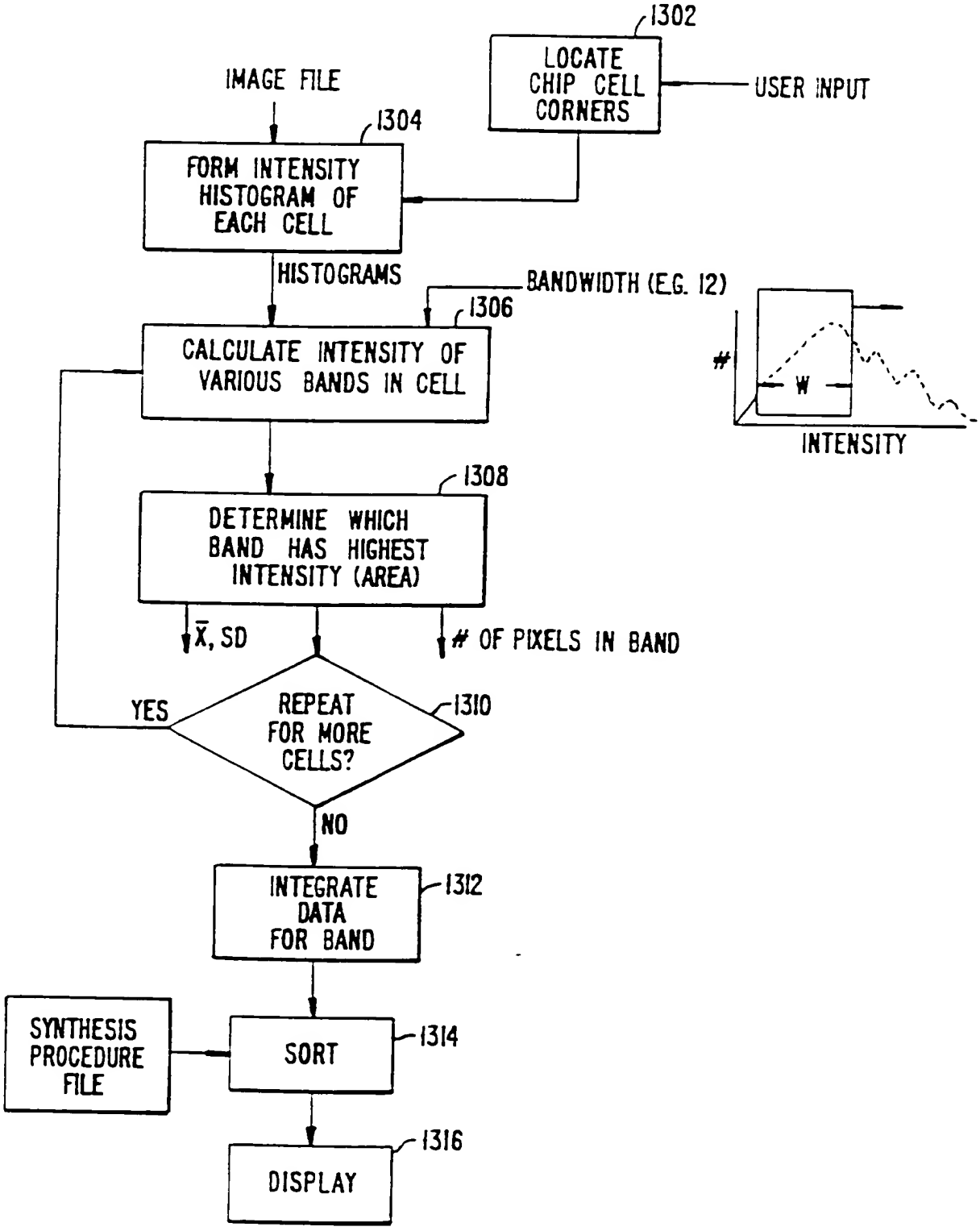
1302
LOCATE CHIP CELL CORNERS
USER INPUT
IMAGE FILE
1304
FORM INTENSITY HISTOGRAM OF EACH CELL
HISTOGRAMS
BANDWIDTH (E.G. 12)
1306
CALCULATE INTENSITY OF VARIOUS BANDS IN CELL
#
W
INTENSITY
1308
DETERMINE WHICH BAND HAS HIGHEST INTENSITY (AREA)
X̄, SD
OF PIXELS IN BAND
YES
REPEAT FOR MORE CELLS?
1310
NO
INTEGRATE DATA FOR BAND
1312
SYNTHESIS PROCEDURE FILE
SORT
1314
DISPLAY
1316

FIG. 13.

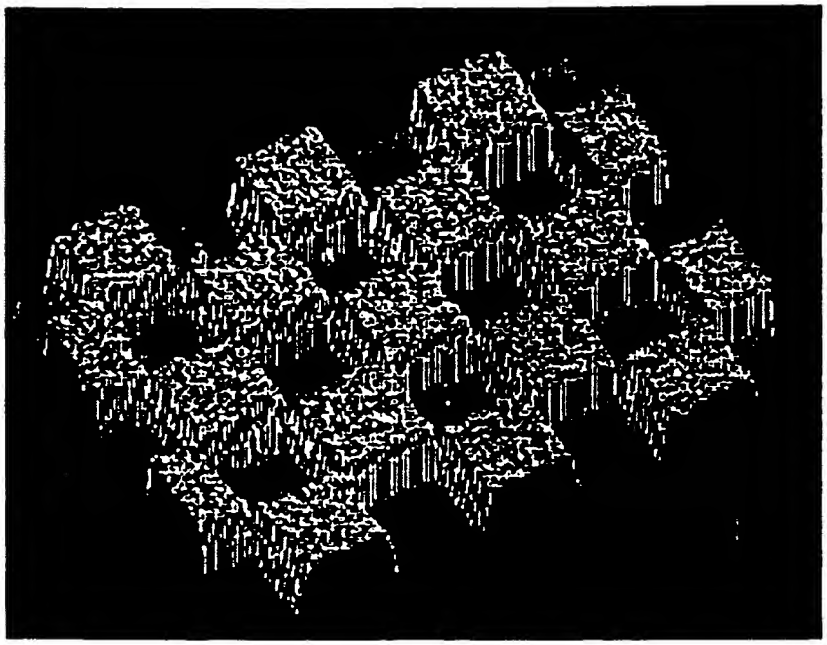

FIG. 14.